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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,734	02/23/2004	Suresh Subramanian	121499 (07783-0163)	2450
31450	7590	07/24/2006	EXAMINER	
MCNEES WALLACE & NURICK LLC 100 PINE STREET P.O. BOX 1166 HARRISBURG, PA 17108-1166			FLETCHER III, WILLIAM P	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/784,734

Applicant(s)

SUBRAMANIAN ET AL.

Examiner

William P. Fletcher III

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>Feb. 23, 2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 13-20 in the reply filed on May 19, 2006 is acknowledged. The traversal is on the ground(s) that:

A. "...the Examiner has not shown that Groups I and II are not both independent and distinct, as the claims must be shown to be "independent and distinct" to maintain the restriction...."

B. "...it would not be an undue burden on the Examiner to search and examine both inventions, as even multiple art classes/subclasses are routinely searched when application are examined."

2. This is not found persuasive.

A. Applicant is encouraged to carefully review MPEP § 802.01 where the meaning and relationship of "independent and distinct" are discussed at length. The section summarizes:

The law has long been established that dependent inventions (frequently termed related inventions) such as used for illustration above may be properly divided if they are, in fact, "distinct" inventions, even though dependent.

Consequently, this argument is not persuasive.

B. For purposes of the initial requirement, a serious burden on the examiner may be *prima facie* shown if the examiner shows by appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP § 808.02. As set-forth in the prior Office action, process claims 13-20 require a search in class 427, including at least subclass 249.2, while article claims 1-12 require a search in class 428, including at least subclass 701, where process is irrelevant. The burden on the examiner further extends to the patentability issues associated with, and evolving as a result of, searching additional inventions. Issues related

Art Unit: 1762

to a process are frequently very different from those related to an article. For example, the issues related to the structural requirements of an article need not be familiar to an examiner of specific processes. Consequently, examination of process claims 13-20 and article claims 1-12 present a serious burden on the examiner both because of (1) a divergent or non-overlapping search related to the separate classification of the inventions and (2) the evolution of patentability issues related to searching multiple and distinct inventions. Consequently, this argument is not persuasive.

3. The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on February 23, 2004 is being considered by the examiner.

Drawings

5. The drawings were received on February 23, 2004. These drawings are acceptable.

Specification

6. The abstract of the disclosure is objected to because it does not recite any process steps.

Correction is required. See MPEP § 608.01(b).

7. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

Art Unit: 1762

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

8. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

9. Claim 20 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 19 recites "...to form a ceramic matrix composite turbine blade." Claim 20 recites "...wherein the turbine engine component is a turbine blade." Clearly the latter fails to further limit the former and, in fact, is slightly broader as well.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. **Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

12. Claim 19 recites the limitation "the turbine blade shape" in line 12 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. **Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luthra et al. (*Melt Infiltrated (MI) SiC/SiC Composites for Gas Turbine Applications*, GE Research & Development Center, 2001CRD112) in view of Park (US 3,925,587 A), Corman et al. (US 5,952,100 A), and *Handbook of Composites*, 2nd Edition.**

Art Unit: 1762

A. With respect to independent claim 13, Luthra teaches the laying-up, CVI rigidizing, partial, and further densification steps recited in this claim as broadly and conventionally known in the art (pp. 3-4).

This reference fails to teach: (i) the particular orientation of the plies and the fashion in which they are laid-up; (ii) that CVI includes infiltration of BN and SiC; and (iii) that the component is an aircraft engine component.

i. Insofar as Luthra teaches that a “woven” cloth, it is the examiner’s position that the cloth has at least a first warp direction and a second weft direction. Park discloses a woven fabric suitable for use in the formation of a carbon composite having a fewer number of weft tows than warp tows, which imparts tensile strength to the fabric in the longitudinal direction (5:19-64). Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of Luthra so as to utilize such a fabric motivated by the desire to impart said longitudinal tensile strength to the finished composite. Further, *Handbook* teaches that it is known in the art of ceramic composites to arrange/orient plies in the composite so as to achieve a desired, among other things, elastic strength (page 321, for example). Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of Luthra so as to orient the biased plies so as to give a desired tensile strength in a desired direction.

ii.. Corman teaches that it is common in CVI of SiC-SiC composites to infiltrate with both BN and SiC (6:39-47). Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of Luthra, which is silent as to CVI materials, so as to infiltrate with both BN and Sic, which is known in the art as suitable for this purpose.

iii. Finally, none of the cited references teaches that the turbine engine component is an aircraft turbine engine component. Nevertheless, it is the examiner's position that the high-temperature turbine engine components of Luthra are either inherently suitable for such a purpose or, with suitable modifications to manufacturing techniques well within the purview of one of ordinary skill, it would have been obvious to utilize this process to manufacture aircraft turbine engine components.

B. With respect to claim 14, Park teaches a warp to weft ratio "significantly greater than 1:1" (5:19-23).

C. With respect to claim 15, Luthra teaches SiC-containing plies (page 2, bottom).

D. With respect to claims 16-18, although none of the cited references specifies these particular components, it is the examiner's position that the process of the cited art is sufficiently robust as to render the manufacture of these other components obvious as well.

16. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luthra et al. (*Melt Infiltrated (MI) SiC/SiC Composites for Gas Turbine Applications*, GE Research & Development Center, 2001CRD112) in view of *Handbook of Composites*, 2nd Edition.

A. These claims are rejected over these references for the same reasons as detailed above. Specifically, as noted above, orientation of plies to give a desired tensile strength would have been obvious.

B. Further, although none of the cited references specifies these particular components, it is the examiner's position that the process of the cited art is sufficiently robust as to render the manufacture of these other components obvious as well.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Landini et al. (US 2004/0115348 A1) is cited as representative of the state of the art.

18. The prompt development of clear issues in the prosecution history requires that applicant's reply to this Office action be fully responsive (MPEP § 714.02). When filing an amendment, applicant should specifically point out the support for any amendment made to the disclosure, including new or amended claims (MPEP §§ 714.02 & 2163). A fully responsive reply to this Office action, if it includes new or amended claims, must therefore include an explicit citation (i.e., page number and line number) of that/those portion(s) of the original disclosure which applicant contends support(s) the new or amended limitation(s).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Tuesday through Saturday, 0700h to 1730h.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1762

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

07/20/2006



William Phillip Fletcher III
Patent Examiner (FSA), USPTO
Art Unit 1762

Alexandria, VA
July 20, 2006